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ABSTRACT

As part of a 3-year study to identify emerging issues and trends in technology for special education, this paper examines current and future demographic characteristics of the United States population. The study stresses the importance of understanding demographic trends and their interrelationships in the effort to predict their potential influence on the special education population in the early decades of the 21st century. Characteristics and trends are identified for the following areas: age, wealth, ethnic composition, level of education, family structure, and regional population distribution. Interrelationships are discussed between: changing family structure and eventual participation of today's students in the workplace; poverty and the incidence of disabilities; increases in the minority population and special education; and increased numbers of older people and resource competition. Implications for education and special education include increased numbers of children with learning difficulties from impoverished or minority backgrounds; increased assumption by schools of responsibilities formerly carried by other social institutions; and increased needs for monetary resources for education. (Contains 42 references.) (DB)

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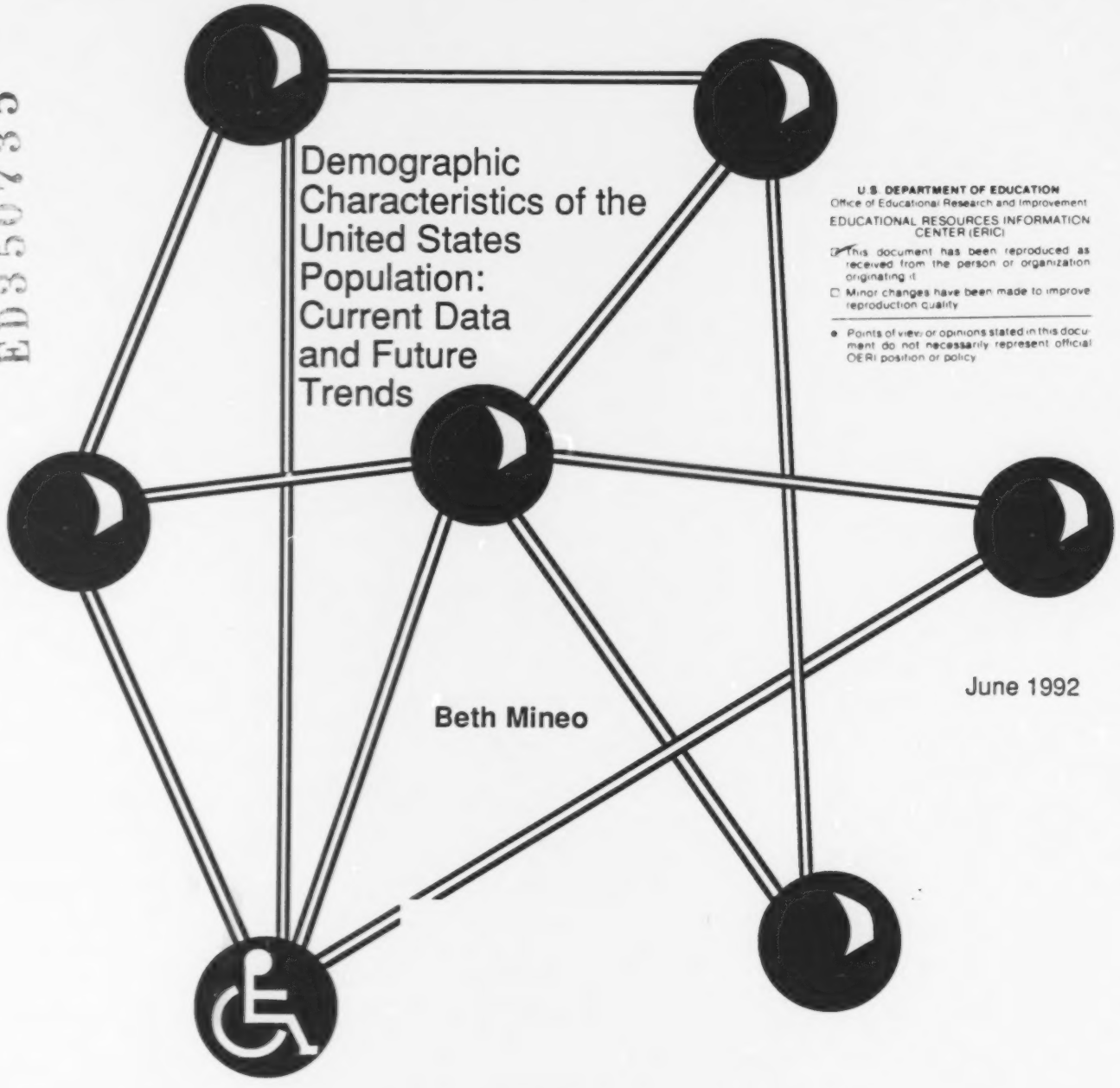
Identifying Emerging Issues and Trends in Technology for Special Education

ED350735

Demographic Characteristics of the United States Population: Current Data and Future Trends



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PREFACE

COSMOS Corporation is conducting a study of the issues and trends affecting the role technology will have in the 21st century for individuals with disabilities. This three-year study is funded by the U.S. Department of Education, Office of Special Education Programs (OSEP), under Contract No. HS90008001.

COSMOS Corporation was founded in 1980, and is located in Washington, D.C. Since its inception, the firm has conducted a wide range of applied social science projects for public and private organizations and foundations. COSMOS's specialties include: conduct of case studies; identification and validation of exemplary practices; evaluation of education, job training, and human services programs; provision of technical assistance to state and community agencies; and strategic planning for public agencies and public firms.

Project participants include expert panels, project fellows, an advisory board, a consortia of practitioners, and project staff. These experts in the fields of technology and special education have come together to examine the issues and trends in these two fields, and how they impact the use of technology for special education in the 21st century. Three expert panels have started examining these issues: one with a focus on technology outside the field of education, one on special education instruction, and one on evolving service delivery systems in special education. Over the three year period their research will be synthesized and become the basis for predictions about the future.

This document is one of the papers commissioned in the first year. The purpose of the paper is to present information on one or more issues as part of the expert panel discussions. It is being shared with people inside and outside of the project to stimulate discussion on the impact of technology in the early 21st century. Readers are welcome to comment on these findings and contact COSMOS Corporation for further information.

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I

DEMOGRAPHIC CHARACTERISTICS OF THE UNITED STATES POPULATION: CURRENT DATA AND FUTURE TRENDS

The best way to meet the needs of future generations is to prepare adequately for them. This can only be done if prognosticators identify the factors influencing life in the future, and more importantly, the potential relationship of these factors to one another given a variety of economic, and sociocultural scenarios. This document reviews several factors influencing the population make-up in the early decades of the next century. It does this by focusing on the demographic trends noted in recent years and making some projection regarding the continuation of these trends to the turn of the century and beyond. It also discusses the potential interaction of these trends and their implications for special education.

To be useful, any discussion of demographic shifts should be conducted in a meaningful context. After introducing a number of significant demographic factors--age, ethnicity, wealth, educational achievement, family structure, and regional population composition--this paper will discuss their interrelationship, and their potential influence on the special education population in the early decades of the next century. No single factor outweighs the others in importance; rather, it is the cumulative effect of the factors' influences on each other that will determine the social, political, and economic climate in which children with special needs will be served.

Age

America is Aging. The baby boom cohort, comprising the approximately 75 million individuals born between 1946 and 1964, is today in its wage-earning, child-producing phase. If the current fertility rates continue, by the year 2030 one out of every five Americans will be over the age of 65. While there are approximately 20 people over 65 for every 100 adults under 65 today, by 2030 this proportion will be about 40 to 100 (Light, 1988). The following chart illustrates the increasing proportion of the U.S. population comprised

by those aged 65, and over as a percentage of those aged 20-64, according to Social Security Administration projections [Series IIB] (U.S. Social Security Administration, 1989):

- 1950 13.8
- 1960 17.3
- 1970 18.5
- 1980 19.5
- 1990 21.0
- 2000 21.4
- 2010 22.1
- 2020 29.1
- 2030 37.7

In addition to the growth in size of the elderly population, a significant detail is the growth of the subgroup aged 85 and older. In 1988, people over 85 made up only nine percent of all elderly. This proportion is expected to grow to 13 percent by 2015 and to 24 percent by 2050 (Morrison, 1986).

There are some significant economic ramifications to the growth of the elderly population. Members of this group tend to be reliant on pension programs such as Social Security and health care programs such as Medicare. At the current time, there are five workers to cover every Social Security beneficiary, but by 2030 there will only be 2.5 workers for each person drawing Social Security income (Light, 1988). Health care costs are the most extreme for the rapidly-growing population of the elderly aged 85 and older (Fosler, 1990c). Some speculate that a partial remedy to this looming problem lies in the fact that as the proportion of elderly citizens increases, the proportion of young people needing financial support for educational, and other purposes will be getting smaller, thus freeing up dollars that could be directed

to meeting the needs of the elderly. The number of dependent children per 100 adults was 77 in 1965 and is expected to fall to 44 by the year 2030 (Siegel and Taeuber, 1986). Unfortunately, the economic trade-off notion is not that straightforward in reality. Preston (1984) estimates that the U.S. government spends ten times more on an older person than on a child. Granted, this estimate pertains only to federal dollars, and much of the support for children and youth comes from state and local sources. However, Clark and Spengler (1977) reported that the total per capita spending for the elderly is three times the total per capita spending for children 17 and under, and this estimate accounted for spending at all levels of government. Longman (1987) estimates this spending differential to be even more disparate; since the time of that estimate, the costs for Social Security pensions, and Medicare have soared while spending on welfare, and education has been cut.

The aging of the population is a trend that is not likely to veer from its current path. The economic effects of the baby boom will be long-term yet predictable, leading Leveson to conclude that there is sufficient advance notice "to forewarn those who do not close their eyes to the future" (p. 104).

Wealth

In the period between 1947 and 1973, Americans enjoyed a steadily rising income. Since 1973, the increase has levelled off. In fact, since 1973 there has been a trend toward greater income inequality as the 20 percent at each end of the income spectrum have seen the most dramatic effects, with the "rich getting richer," and those with the most limited incomes being forced further into poverty. The shift toward greater inequality has been more pronounced for families with children (Committee on Ways and Means, 1989).

The principal determinant of poverty is unemployment (Marmot, Mashaw, and Harvey, 1990). Between 1948 and 1973, the unemployment rate averaged 4.8 percent while inflation averaged 2.7 percent. Since 1973, unemployment has averaged 7.2 percent while inflation has

averaged 6.8 percent. It is not surprising that the number of families living below the poverty line has increased since 1973. Four out of ten poor people in the United States are children, although children make up only about 25 of the population. The number of children living in poverty percent increased from 11 million in 1968 to 14 million in 1988, while welfare benefits to families with children declined by one-third during that period (Kozol, 1989). More children from minority groups are live in poverty than do white children (The Arc, 1992; Minneapolis Community Business Employment Alliance, 1985; McDonald, 1986). Children also comprise the fastest-growing sector of the homeless population that is now estimated to be between three, and four million people (Kozol, 1989).

Ethnic Composition

In perhaps no more than a decade or two, one out of three Americans will be a member of a minority group (Teitelbaum and Winter, 1985). At the current time, there are 71 million people from minority groups in the United States (The Arc, 1992). Of this group, 42 percent were African American, 32 percent were Hispanic, ten percent were Asian/Pacific Islander, and three percent were American Indian/Alaskan Native. The African American population is expected to number 33.6 million by 1995 and 44 million by 2020 (Hodgkinson, 1990). The Hispanic population grew at a rate 6.5 times faster than the general population between 1970 and 1980 (Guernica, 1982). Numbering 18.7 million people in 1987, the Hispanic population is expected to increase to 47 million by 2020 (Bureau of the Census, 1986, 1987). If undocumented Hispanics are included in this projection, the Hispanic population is expected to be 60 million by the turn of the century (Guernica, 1980). The Hispanic population is not a homogeneous one. Approximately 59 percent of these individuals are of Mexican origin, 15 percent are Puerto Rican, and seven percent are from Central/South America (Guernica, 1982). The Asian American population is also quite diverse, having a variety of religions, languages, and cultural backgrounds (Fosler, 1990a).

The ethnic composition of the United States is influenced not only by the demographic trends involving its minority populations but also by immigration patterns. From 1980 to 1985, 28 percent of the population growth could be accounted for by immigration (Meyer and Kern, 1990c). Asians currently represent 44 percent of the annual U.S. immigration (Hodgkinson, 1990). Legal immigrants, however, may be only half of the nation's newcomers; if illegal immigrants are factored in, total immigration may actually be close to one million persons per year (Meyer and Kern, 1990c).

Of greater influence than the numbers of immigrants, is the ethnicity of these individuals. As will be discussed later, there is great variation in educational levels, geographical preferences, and family structure based on the country of origin. Regardless of whether they were born in this country, or came from another, by the year 2000 38 percent of the nation's children under age 18 will be from minority groups (Hodgkinson, 1990).

Level of Education

Of extreme concern in our consideration of future trends, is the degree to which our children are leaving school without adequate preparation for participation in the workforce. The overall dropout rate has held steady at approximately 25 percent since 1965. The dropout rate for African Americans and Hispanics is even more pronounced, estimated at 27 percent and 42 percent, respectively (Guernica, 1982; Meyer and Kern, 1990a). Nearly 13 percent of adults in the United States are functionally illiterate, and a tremendous proportion of the adult population has compromised literacy skills. The National Assessment of Education Progress undertaken by the U.S. Department of Education found that, among 21-25 year olds, only 60 percent of white, 40 percent of Hispanic, and 25 percent of African American adults could locate information in a news article or almanac. Further, only 25 percent of white, seven percent of Hispanic, and three percent of African American adults could decipher a bus schedule (Meyer and Kern, 1990a).

Recent immigrant groups vary in their levels of educational attainment. While only 21 percent of those immigrating from Mexico had completed high school, 73 percent of Asians, 82 percent of Africans, and 89 percent of Indians had completed at least a high school education (Meyer and Kern, 1990c).

Family Structure

The typical American household has changed dramatically in recent years. Households are becoming smaller and more varied; there are more childless couples, one-parent families, unmarried parents, people living alone, and unrelated people living together. In 1970, 40 percent of the households were comprised of a married couple and their children; this proportion dropped to 28 percent by 1985 (Morrison, 1985).

The number of one-parent families increased from four million in 1970 to seven million in 1980. One-parent families accounted for 26 percent of all family groups in 1985. Ninety percent of one-parent families are maintained by the mother (Bureau of the Census, 1986b). This characteristic is not as evident in white families as in minority families. While only 18 percent of white children lived with one parent, 30 percent of Hispanic children and 53 percent of African American children could be found in this type of household configuration (Bureau of the Census, 1986a).

The number of births to unwed mothers increased from four percent of all births in 1950 to 20 percent of all births in 1984. Especially worrisome in these statistics is the increase in the teenage pregnancy rate, because unwed teenage mothers are particularly likely to fall into the cycle of social, and economic dependency that has long-term consequences for multiple generations (Meyer and Kern, 1990b). In the years between 1972 and 1987, the teenage pregnancy rate rose approximately 20 percent, although this does not translate into a concomitant increase in the birthrate due to the number of abortions and other factors resulting in termination of pregnancy (Furstenberg, Brook-Gunn, and Morgan, 1987). What has increased is the number of unwed teenage

mothers. In 1955, 14.3 percent of births to women aged 15 through 19 were to unmarried women; this proportion had increased to 55.6 percent by 1984 (Furstenberg, Brook-Gunn, and Morgan, 1987). In 1984, out of ten million teenage females, about one million became pregnant, and a bit less than half gave birth. By the time they turned 20 years of age, 19 percent of white women and 45 percent of black women have given birth (Meyer and Kern, 1990b). In 1986, 75 percent of African American babies were born to single mothers, half of whom were teenagers (New York Times, 1986).

Obviously, in a single-parent household headed by a woman, these mothers are the primary source of economic support. In recent decades, however, the number of married women in the labor force has also increased. In 1960, when white married women did go to work, it was only when their children were older and in school. By the 1980's over half of all married women--even those with young children--worked outside the home (Light, 1988).

Regional Population Distribution

Probably the most widely-recognized shift in population distribution has been the migration from the Frost Belt to the Sun Belt, yet the national demographic trends "mask wide variations from region to region" (Fosler, 1990d, p. 223). Fosler notes the widely variable school enrollment rates as an example. School enrollment in the Northeast are decreasing while increasing greatly in the West (Bureau of the Census, undated). The 5-14 age group is expected to grow by over 55 percent in Nevada in the next decade; during this same period enrollment in New York is expected to decrease by 6.5 percent. The percentage of school children from minorities differs widely by region as well. In 1984, over 34 percent of Alabama's public school students were African American, compared with just 1.4 percent of the students in Alaska (U.S. Department of Education, 1984).

Overall, the mountain states are expected to register the fastest growth in the next decade (Morrison, 1985). However, the regional variations again may be obscured by the overall national trends. For

instance, California, and Texas have been experiencing large increases in Mexican immigrants. In fact, 71 percent of the total Hispanic population resides in just four states: California, Texas, New York, and Florida (Guernica, 1982). Sixty percent of Hispanics of Puerto Rican heritage, however, reside in New York (Guernica, 1982).

The white "majority" will be a minority in California and Texas by the year 2010 (Hodgkinson, 1990). Already, minority groups have become the majority in 51 U.S. cities with populations in excess of 100,000 (The Arc, 1992). Florida has had to adjust to large increases in its elderly population (Fosler, 1990d). The populations of nine states--eight of them in the South or West--are expected to grow at twice the national rate between 1990 and 2000. Thirteen states, mostly in the Midwest, are expected to lose population (Bureau of the Census, 1988).

These demographic variations influence the economic and sociopolitical climate in the different geographic regions of the United States. These will be discussed in the next section on the interaction of various demographic characteristics.

Predicting the Future Based on these Trends

An entire discipline is devoted to prediction of the future based on statistical probabilities and observed trends. It is not the purpose of this paper to address the topic in that way. Rather, this document highlights the trends evident in our changing population, and offers some observations about the ways these trends potentially could interact to influence the special education population, and marketplace in the coming years. To this point we have discussed various aspects of our changing population composition, including the factors of age, ethnicity, wealth, educational attainment, family composition, and regional population characteristics. Now we shall examine the potential interaction of a number of these factors.

Let us consider the relationship between changing family structure, and eventual participation of today's students in the workplace. We know that more households are headed by single parents--particularly women--than at any other time in our country's history.

The school dropout rate for children living in single-parent households is twice that for children with two parents at home (Moynihan, 1986). In addition, teenaged parents are less likely to finish high school, which excludes them from being able to take advantage of many opportunities in the workplace, which in turn increases the likelihood that they will become dependent on publicly supported services and/or join the ranks of those living in poverty.

We also know that a child raised in an impoverished environment is at greater risk than his peers from wealthier circumstances. A recent publication from The Arc, a national organization on mental retardation, notes that poverty "can lead to health problems, and influence social environments in ways that can interfere substantially with a child's ability to learn. Children from poor families are more likely to have low birthweights, higher rates of infant mortality, and a higher risk of developing disabilities and health problems later in life" (The Arc, 1992, p. 1).

Mothers in impoverished circumstances tend to have poor prenatal diets, lack of knowledge about the need for prenatal care, reduced access to prenatal care, and greater incidence of tobacco, drug, and alcohol abuse. Twenty-five percent of pregnant women receive no prenatal care (Persell, 1991), causing the United States to have the 19th highest infant mortality rate in the world. Hodgkinson (1989) estimates that 11 percent of the school-aged children with disabilities would have had a less severe disability or no disability at all if their mothers had received prenatal care.

The minority population is growing at a faster rate than the non-minority population. We have seen a resurgence in ethnic, and racial tensions in recent years, and there is significant potential for these tensions to be exacerbated as the population ages and the workforce changes. Data indicate that governments spend much more to support an elderly person than they do to support a child. The government derives the necessary revenue for such support from taxation of the workforce. Yet, in the coming years the size of the workforce will shrink while the size of the population aged 65, and older will

grow tremendously. Not only is the size of the workforce going to change, but its ethnic composition will change as well.

The younger working-age population will become increasingly black, Hispanic, and Asian. Thus, any resentment associated with the growing burden imposed on the younger generation in bearing the cost of programs for the elderly could be exacerbated by ethnic tensions, with an increasingly minority workforce supporting a predominantly white retired population (Fosler, 1990a, p. 213).

A growing minority population also prompts consideration of the degree to which members of these groups will be--or even will want to be--assimilated into the larger population. Hispanics in the United States display a strong preference for Spanish language television, and radio over English language media (Guernica, 1982). It may take three generations for the children of immigrants to become monolingual in English (Fosler, 1990d). There is resistance in some minority communities to the attempt by educators to teach children in English rather than their native tongues, and this has prompted some "majorities" in these communities to pass legislation insisting that English be the "official" language in which lessons are taught.

In California, one-eighth of the public school children do not speak English. One-quarter of the children in public schools are Hispanic, and another eighth are Asian. White children will comprise only about one-third of California's public school population in about 20 years (Meyer and Kern, 1990c). In fact, at least ten states face the prospect of "minority majorities" in their public schools by 1995 (Hodgkinson, 1990). These cultural differences, along with growing resistance to assimilation in many quarters, and a backlash reaction spreading among the shrinking "majority", could result in increasingly volatile race relations.

Implications for Education and Special Education

There is growing concern over a bifurcation in American society. The population is becoming increasingly polarized at the extreme ends of the spectrum concerning wealth (Committee on Ways and Means, 1989),

religion, values, and attitudes (Smith, 1984). Daniel Patrick Moynihan recently wrote:

> To talk about the condition of children is, by definition, to talk about the families in which they live. That is why we are going to have to learn to talk about two kinds of children, because--of a sudden, in a flash--we have become a society divided into two kinds of families. Call it a dual family system. In this dual family system, roughly half our children, somewhat randomly, but inexorable, are born without a fair chance (New York Times, 9/25/88, p. 25).

Russell (1987) notes that private school enrollments are increasing as affluent baby boom parents opt out of the public school system, relegating the public schools to "become, increasingly, the place where children from single-parent families learn (p. 116). The demands on the public schools increase as greater proportions of the students come from disadvantaged backgrounds. The schools are expected to assume many of the responsibilities once carried by other social institutions--in particular, the family--by offering a wider range of services.

The statistics tell us that a greater proportion of children from disadvantaged backgrounds have learning difficulties as a result of their impoverished environments. Given that more minority children live in poverty than do white children (National Commission on Children, 1991), it would follow that more minority children evidence the types of difficulties that would qualify them for special education programs. Take as an example that African American and Hispanic children made up approximately 25 percent of the nation's children, yet account for 82 percent of all cases of pediatric AIDS. Approximately 93 percent of the children with HIV acquire developmental disabilities resulting in physical and/or mental impairment (The Arc, 1992). Researchers at the Centers for Disease Control in Atlanta found that a low level of maternal education was an important risk factor for mental retardation for both African American and white children (Yeargin-

Allsop, 1990). They also found that four times as many African American ten-year olds in Atlanta were classified as having mental retardation as their age-matched white peers.

How the public schools cope with the changing special education population in the coming years will have a lot to do with how they address the needs of the changing school-age population in general. Leveson (1991) notes that a precondition to progress is "recognizing that the U.S. will be far more ethnically and culturally heterogeneous, and we will have to accept that and deal with it." The demand for monetary resources for education will most likely be even greater than it is today. Even though the absolute number of school-aged children is decreasing, the needs of this group are increasing due to changes in family structure and resources. Societal tensions over educational policies and practice are bound to increase as there is greater competition for government dollars as a result of our aging population and the disenfranchisement of a large segment of society. Leveson (1991) suggests that a number of public and private efforts are going to have to be coordinated in order to achieve meaningful results.

It is clear from this discussion of current demographic trends that our society faces significant challenges in the coming decades. Lest our course be seen as immutable, however, consider the introductory comments of R. Scott Fosler (1990b) in his book titled Demographic Change and the American Future: Demography certainly plays a powerful role in shaping the social context, but it does not preordain the future. Demographic forces are significant not so much in their own right, but rather in the way they interact with other forces--economic, social, political, technological, and environmental. Nor do the consequences of these interacting forces have to be passively accepted. Action can be taken to prepare for them, and in some instances even to alter them (p. 3).

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PAPERS AVAILABLE FROM COSMOS

The papers commissioned by the project are available upon request include:

"Technology and Interactive Multimedia" by Ray Ashton;

"VLSI Technology: Impact and Promise" by Magdy Bayoumi;

"Conceptual Framework: Special Education Technology" by Richard Howell;

"Demographic Characteristics of the United States Population: Current Data and Future Trends" by Beth Mineo;

"School Reform and Its Implications for Technology Use in the Future" by John Woodward;

"Textbooks, Technology, and the Public School Curricula" by John Woodward;

"Workforce 2000 and the Mildly Handicapped" by John Woodward;

"Virtual Reality and Its Potential Use in Special Education" by John Woodward; and

"Annotated Bibliography: Training, Education Policy, Systems Change, and Instruction" by Lewis Polsgrove.

Copies of these reports are available upon request.